

INTERFACIAL STRENGTHENING FOR ELECTROLESS NICKEL IMMERSION GOLD SUBSTRATES

ABSTRACT OF THE DISCLOSURE

5 A flip chip package, apparatus and technique in which a ball grid array
composed of a doped eutectic Pb/Sn solder composition is used. The dopant in the
Pb/Sn solder forms a compound or complex with the phosphorous residue from the
electroless nickel plating process that is mixable with the Pb/Sn solder. The
phosphorous containing compound or complex prevents degradation of the
10 solder/under bump metallization bond associated with phosphorus residue. The
interfacial solder/under bump metallization bond is thereby strengthened. This results
in fewer fractured solder bonds and greater package reliability.